be spread before the public eye upon the public records.

The vital defects of Compulsory Health Insurance are so apparent, and the need of it so invisible, and the objections to it so serious and the cost of it so enormous, that the only answer I can conscientiously give to the commission's question—"Shall we have Compulsory Health Insurance in California?"—is emphatically "No."

Original Articles

CEREBROSPINAL FLUID FINDINGS IN HERPES ZOSTER.*

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Herpes Zoster is divided into acute specific Herpes and symptomatic Herpes. The former classified and studied by Head and Campbell [1] and later experimentally by Rosenow and Oftedal [2] is claimed by these latter observers to be due to a streptococcus. It has for its characters that it is obtained from the tonsils, from the sputum, from pyorrheal cavities; that morphologically it is non-capsulated, stains positively by Gram, is short-chained and often lanceolate; that it produces moist green colonies on culture. In animals Rosenow and Oftedal produced typical Herpes lesions, both centrally and peripherally by intra-peritoneal and sub-cutaneous injections. The injection material included in addition to pure culture of the streptococcus, mixed cultures from the tonsils and pyorrheal cavities, and emulsions of tonsillar tissue. The posterior roots or ganglia corresponding to the Herpes area on the skin showed hemorrhages and edema. The hemorrhage at times extended for a short distance along the sheath of the spinal nerve, but intercostal nerves and cutaneous branches remote from the lesions in the ganglia and skin showed no changes. Streptococci in the clear blister fluid were absent. These primary mild lesions are probably trophic; the severer lesions are probably the result of a superimposed hematogenous infection. The streptococcus of Herpes Zoster has, then, an elective affinity for the ganglia and posterior roots. The skin lesions are probably at first trophic.

Symptomatic Herpes has been noted as a complication of a variety of different conditions, amongst which may be mentioned pressure cord paralysis as from tumor (Boas [3]), as an accompaniment of pneumonia; Pott's disease; poisons, such as arsenic; different forms of cord and meningeal disease; disease of the spine, such as carcinoma. Alderson [4] reports a case of Herpes in relation to a syphilitic cord lesion. Immerman [5] reports two cases of paresis and one of tabes showing Herpes, and concludes that the ganglion changes were in all probability specific due to spirochetes or their toxins.

Of the numerous theories of the causation of Herpes the lesions in the spinal ganglia and consequent trophic skin changes appear to be the most tenable. Of all those nervous disorders in which trophic changes occur from well-defined central lesions, such as tabes, syringo-myelia, as typical examples, Herpes has always appeared to me to be the purest example of a trophic nerve lesion. In tabes, for example, Barré [6] has held that the arthropathies are really due to vascular changes in the joints. Eloesser,[7] from animal experimentation, holds that the so-called trophic changes underlying Charcot joints are due to trauma and disturbance of the protective sensory mechanism of the extremities by reason of the sensory system degeneration. The frequency of syphilis in cases of syringo-myelia may also explain in a large measure the trophic changes secondary to vascular disease. Recently von Tschermak [8] has reported a case of gangrenous Herpes following a partial lesion of the brachial plexus affecting the ulnar nerve fibres, the eruption occurring after a period of 109 days after the injury. This writer regards this instance of Herpes to be a late angio-neurotic reflex. Similar cases have been previously reported by Charcot, Brown Sequard, Weir Mitchell et al. Orr and Rowe [9] believe Herpes to be an affection of the ganglia from an ascending process by way of the nerve lymphatics of the nerve sheaths. Montgomery and Culver [10] hold that the infection travels from the periphery, the door of entrance being the skin or mucous membranes. Accordingly Herpes is a centripetal disease. Thusly motor complications of Herpes and especially the frequency of these in cephalic cases are explained. Hewlett [11] states that the cause of motor paralysis accompanying Herpes is by no means clear. In two cases of cervical Herpes reported by this author and complicated by facial paralysis on the same side, the most plausible explanation appeared to be a descending process along the cervical nerves from the affected ganglia, and extension to the motor terminations of the facial nerve and an ascending process affecting the nerve trunk itself.

It seemed to me as far back as 1912 that one met with Herpes in syphilitic disease with uncommon frequency. The possibility of supposedly specific Herpes being in reality due at times to a latent syphilis was next thought of. Accordingly we endeavored to make cerebrospinal fluid examinations in all cases of Herpes which presented from that date. Of 79 cases of Herpes a lumbar puncture was done in 21 cases. In 14 cases in which a blood Wassermann alone was done four cases showed a positive reaction and 10 a negative reaction. The remaining 44 cases were not examined by the blood or fluid tests, nor were they clinically cases of syphilis.

The following brief abstracts of 21 cases in which the fluid was examined are here given. Only the routine tests for analysis of the fluid were made. There were no examinations for bacteria nor attempts at culture.

1. W. R. Dispensary No. 13197—12. Male, aged 38. Tabes. Dermatitis herpetiformis. Eruption on left buttock following salvarsan administration. Wassermann: blood negative, fluid positive. Leucocytes 88 per cmm. Globulin increased.

2. M. S. Dispensary No. 15742—13. Male, aged 41. Syphilis, Herpes Zoster. Eruption D_{12} L_1 L_2 L_3 right side. Wassermann: blood positive, fluid

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negative. Leucocytes 100 per cmm. Globulin increased.

3. J. H. Dispensary No. 1466—11. Male, aged ?. Syphilis, Herpes Zoster. Eruption D_9 D_{10} right-sided. Wassermann: blood positive. Fluid Noguchi positive. Leucocytes not given. Protein increased.

4. B. D. W. Dispensary No. 9643—Male, aged 22. Herpes Zoster. Eruption D_{10} D_{11} left-sided. Wassermann: blood and fluid negative. Leucocytes 2 per cmm. Globulin not increased.

5. C. A. Private records (Relief Home). Male, aged 74. Herpes Zoster. Eruption D_{10} D_{11} D_{12} right-sided. Wassermann: blood positive, fluid positive. Leucocytes 10 per cmm. Globulin increased.

6. Incomplete record; history misplaced; data from card index. J. Male. Herpes Zoster. Cerebrospinal fluid findings. Globulins not increased. Leucocytes 2 per cmm. No record of Wassermann.

7. H. F. Dispensary No. 14915—13. Male, aged 58. Herpes Zoster. (History of chancre followed by specific treatment in 1887.) Eruption D_2 right-sided. Wassermann: no record. Leucocytes 14 per cmm. Globulins slightly increased.

8. C. P. Dispensary No. 23439—Male, aged 30. Herpes Zoster. Eruption C_6 C_7 left-sided. Wassermann: blood and fluid negative. Leucocytes 90 per cmm. Globulin slightly increased.

9. W. P. Dispensary No. 19913—Male, aged 60. Herpes Zoster. Eruption supra-orbital region right-sided. History of soft chancre 41 years ago, followed by specific internal treatment. Wassermann: blood and fluid negative. Leucocytes not increased. Globulin not increased.

10. N. S. Dispensary No. 48881—Male, aged 44. Cerebro-spinal syphilis. Herpes Zoster. Eruption fourth to ninth rib on right side of spine. Wassermann: blood negative. Fluid positive in amount of 0.5 ccm, negative 0.1 ccm. Leucocytes 73 per cmm. Globulin increased.

11. M. B. Dispensary No. 50418—Male, aged 56. Pulmonary tuberculosis, arthritis of spine, Herpes Zoster. Eruption, location not given. Wassermann: blood and fluid negative. Leucocytes not increased. Globulin not increased.

12. L. L. Dispensary No. 4757—Female, aged 8. Congenital lues, Herpes Zoster. Eruption left chest and back. Wassermann: blood positive. Fluid, no record. Leucocytes 63 per cmm. Globulin slight increase.

13. T. D. Dispensary No. 51332—Male, aged 54. General paresis, Herpes Zoster. Eruption D_6 left side. Wassermann: blood positive. Fluid positive. Leucocytes—three different fluids 55, 68, 70 per cmm. Globulin increased.

14. A. C. Dispensary No. 52713—Male, aged 41. General paresis, Herpes Zoster. Eruption on left shoulder. Wassermann: blood and fluid positive. Leucocytes 10 per cmm. Globulin increased.

15. A. J. Private Records 373—Male, aged 61. Pneumonia, Herpes Zoster. Eruption maxillary branch of 5th nerve. Wassermann: blood negative, fluid negative. Leucocytes 10 per cmm. Globulin negative.

16. A. P. Dispensary No. 44695—Male, aged 48. Herpes Zoster. Eruption lower intercostal nerves, left sided. Wassermann: blood negative, fluid negative. Leucocytes 6 per cmm. Globulin negative.

17. G. M. Dispensary No. 51918. Male, aged 11. Herpes Zoster. Eruption on posterior trunk. Exact distribution not given. Wassermann: blood and fluid negative. Leucocytes 2 per cmm. Globulin negative.

18. H. E. Dispensary No. 61775. Male, aged 76. Herpes Zoster, arteriosclerosis, hypertension. Eruption over 6-7-8 ribs right side. Wassermann: blood and fluid negative. Leucocytes 10 per cmm. Globulin negative.

19. B. B. Dispensary No. 59940. Female, aged 48. Syphilis, Herpes Zoster, chronic hypertension. Eruption left lower abdomen. Wassermann: blood positive, fluid negative. Leucocytes 1 per cmm. Globulin negative.

20. H. H. Private records (Relief Home). Male, aged 85. Herpes Zoster. Eruption left lumbar distribution. Wassermann: no record in blood and fluid. Leucocytes 14 per cmm. Globulin negative.

21. D. R. T. Private Records, No. 994. Male, aged 35. Herpes Zoster. Eruption inner border of right foot. Wassermann: blood and fluid negative. Leucocytes 15 per cmm. Globulin slightly increased.

Of the foregoing cases 9 occurred in syphilitic persons and in all but one of these (No. 19) the fluid showed a characteristic reaction of syphilis of the central nervous system. Eleven cases were negative for syphilis. However, in 5 out of these 11 cases there was a cellular increase above the normal—cases Nos. 8, 15, 18, 20, 21. The globulin test in these 5 cases was negative or slightly increased. One case (No. 7) we must class as doubtful as regards presence or absence of syphilis.

The following comment may be made from the foregoing analysis:

1. Herpes Zoster occurs with comparative frequency as symptomatic Herpes in syphilis of the central nervous system.

2. In non-syphilitic Herpes an increased cell count may mislead the clinician if other evidence suspicious for syphilis is brought out in the general survey of the case. As an example of this, I wish to mention more in detail the last case in my series. The patient, a physician, complained of pain in both lower extremities, which was suggestive of either the lancinating pains in tabes or an alcoholic neuritis. A blood Wassermann reaction revealed an xx-reaction. A searching neurological examination revealed, however, no sign of central nervous system syphilis. A lumbar puncture and fluid examination showed a negative Wassermann, reaction, globulin slightly increased and leucocytosis of 15 cells per cmm. Repetition of the blood Wassermann gave a negative reaction. Additional medical history in this case brought out the fact that a slight herpetic eruption had occurred about two weeks before the patient presented himself for examination. Even at this time evidence of the Herpes lesions were seen on the outer border of right foot.

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